PATENT
03370-P0061A WWW/TMO/DWA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	Lars Severinsson
Application No. 10/722,938	Filing Date: November 26, 2003
Title of Application:	A Device in a Vehicle Brake Arrangement
Confirmation No. 9635	Art Unit: 3683
Examiner	Thomas J. Williams

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Appeal Brief Under 37 CFR §41.37

Dear Sir:

A Notice of Appeal from the final rejection of Claims 1-3, all pending claims, of U.S. Patent Application No. 10/722,938 is submitted herewith. Applicant accordingly files its appeal brief in connection with its appeal. A Claims Appendix is submitted herewith.

Certificate of Mailing: I hereby certify that this correspondence is today being deposited with the U.S. Postal Service as FIRST CLASS MAIL, postage prepaid, in an envelope addressed to: Mail Stop Appeal Brief – Patents; Commissioner for Patents; P.O. Box 1450; Alexandria, VA 22313-1450.

October 26, 2005

Paul J. Bosler

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(i) Real Party In Interest

The real party in interest is Haldex Brake Products AB, assignee of the patent application.

(ii) Related Appeals and Interferences

There are no related Appeals or Interferences.

(iii) Status Of Claims

Claims 1-3, all pending claims of the present application, stand rejected and are the subject of the instant Appeal. A copy of each of these claims is attached hereto in the Claims Appendix.

(iv) Status Of Amendments

There are no pending or unentered Amendments.

(v) Summary Of Claimed Subject Matter

The present invention, as claimed in independent Claim 1, the only independent claim, relates to a vehicle brake system that determines the applied brake force. Referring to Figures 1-4, the system includes an electric motor (30), a thrust rod gear

(3) driven by the motor (30), a thrust rod (1) that applies the brake force when the gear (3) is driven, and an enclosed, elastically deformable medium (20). The reaction force from the brake force acts on the medium (20), and the medium (20), in turn, acts on an axially movable push rod (22). The push rod (22) transmits force from the medium (20) to a sensor (26, 28) located remotely from the medium (20). Because the sensor (26, 28) is located remotely, heat from the system does not adversely affect it. The sensor (26, 28) then transmits a signal to the motor (30), causing the motor to stop applying a brake force when a desired amount of force has been attained.

(vi) Grounds Of Rejection To Be Reviewed On Appeal

Claims 1-3 stand rejected under 35 U.S.C. §103(a) as unpatentable over Rinsma, WO 99/37939) in view of Kojima, U.S. Patent No. 5,739,626.

(vii) Argument

The Examiner's rejection under 35 U.S.C. §103(a) is improper because it would require modifying the primary reference when there is no suggestion or motivation to do so, and the primary reference teaches away from the asserted modification, which would change its basic operation.

As acknowledged by the Examiner, Rinsma (the primary reference) does not anticipate the claimed invention because it does not disclose each and every element thereof. Specifically, Rinsma does not have a sensor "located remotely from the elastically deformable medium" and, as noted by the Examiner, Rinsma does not disclose a push rod disposed between the sensor element and the deformable medium. To the contrary, referring to the drawing referenced by the Examiner (Figure 3) and the accompanying text, one can see that Rinsma describes a sensor 50 that is actually disposed adjacent a measuring channel 51 (which is connected to the internal space of a pressure pad 53), and the deformable medium identified by the Examiner is a temperature resistant thermal oil in this channel, the pressure of which is measured by the sensor 50. See Page 6, lns. 3-6, 11-13. The sensor 50 is specifically located adjacent the measuring channel in which the asserted "deformable medium" (oil) resides, and there is no use of a push rod.

The Examiner has cited another reference, directed to a piezoelectric sensor, to change the design of Rinsma so that it employs a push rod to transmit a force from the deformable medium to the sensor. As explained below, not only is there no suggestion or motivation to modify Rinsma in this way, but Rinsma actually teaches away from doing so.

There Is No Suggestion/Motivation to Make the Necessary Combination/Modification

The Examiner has stated that the motivation for modifying Rinsma to arrive at the present invention "was merely to solve the problem at hand, which is *providing a sensor for Rinsma that is capable of use in the brake apparatus of Rinsma*." Advisory Action of 09/26/05 (emphasis added). Appellant respectfully submits that this statement itself illustrates the Examiner's misunderstanding of the necessary motivation/suggestion to combine/modify for a proper obviousness rejection, as "the mere fact that references *can be* combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP 2143.01 (citing *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) (fact that prior art "may be *capable* of being modified to run the way the apparatus is claimed, there must be some suggestion or motivation in the reference to do so.")) (emphasis added). There must be some independent suggestion in the art, and this suggestion cannot come from the applicant's disclosure. *See In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991).

Here, there is no suggestion in the prior art to make the modification asserted by the Examiner. The Examiner cited Rinsma, which describes a design for a brake system that employs a load sensing mechanism comprising a liquid that gets compressed inside the internal space of a pressure pad, with a sensor located at the end of its measuring channel to directly measure the pressure of the liquid. The Examiner then found and used the Kojima reference to change this basic design of the

load sensing mechanism in Rinsma into the push rod design of the present invention. There is no suggestion to do so. Kojima is simply directed to a sensor, and is not at all related to brake systems, and thus, would not have suggested to those skilled in this art of brake systems to modify the actuator of a brake in this way. Rinsma itself provides no suggestion or motivation for one skilled in the art to look to other load sensing mechanisms to change the basic design of the mechanism it itself teaches.

Appellant respectfully submits that the Examiner has searched for individual elements, and has then combined two references in order to make a change that would not reasonably be suggested by those references. This is not a proper obviousness rejection, as it is not appropriate to simply scan existing patents in order to piece together the claimed invention using the Applicant's disclosure as a roadmap. Indeed, as the Federal Circuit has very recently reaffirmed and explained:

> [I]n making the assessment of differences between the prior art and the claimed subject matter, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. *Envtl. Designs, Ltd. v. Union Oil Co.,* 713 F.2d 693, 698 (Fed.Cir.1983) (noting that "virtually all [inventions] are combinations of old elements"). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result--often the essence of invention.

Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1337, 75 U.S.P.Q.2d 1051, 1054 (Fed. Cir. 2005) (citations omitted).

The Primary Reference Teaches Away from the Proposed Modification

In addition to the fact that there is simply no motivation to combine the Rinsma and Kojima references to make the relevant modification, Rinsma even teaches away from doing so. The primary objective of Rinsma is to alleviate the problems associated with transverse or radial loadings. See Page 1, lns 20-28. Therefore, Rinsma employs load sensing mechanisms in accordance with this objective, including the particular embodiment cited by the Examiner. As described above, this includes a measuring channel having a load sensor located at its end, with a compressible fluid inside the channel that directly engages the load sensor, which measures the pressure of the fluid. Specifically, Rinsma explains:

> ...the resilient intermediate pressure means engages a load measuring device. In particular, the load measuring device senses the pressure of the fluid.... The pressure developed in the fluid provides a reliable measure of the force exerted by the actuator. Possible non-axial or excentric loadings will not hamper the measurement of the overall axial loads to which the actuator is exposed. Thus, a reliable measurement is obtained.

Page 3, lns 1-7. By employing this arrangement, the Rinsma device is able to achieve its intended purpose of dealing with asymmetric loading.

It is also by employing *this particular arrangement* that the Rinsma device deals with the ancillary problem of heat in the device that can sometimes adversely affect the sensor. Specifically, Rinsma explains:

> If convenient, the internal space of the pressure pad is connected to a measuring channel, the free end of said channel being provided with the load measuring device. Thereby, the actual measurement, e.g., by a piezoelectric sensor, may be carried out a particular location which is for instance shielded from the area where the actuating member is located (heat, moisture).

Page 3, lns 8-12. Rinsma further explains:

> The internal space of the pressure pad is connected to a measuring channel, the free end of said channel being provided with the load measuring device... The actual load measuring device (e.g. a piezoelectric sensor) may now be situated at a location where the influence of the heat developed by the friction between the brake pads and the brake disc, is reduced.

Page 3, lns 21-26. Additionally, Rinsma further describes dealing with heat concerns in this particular design by using a temperature resistant thermal oil as the fluid, and optionally, a ceramic pad to insulate the oil. See Page 3, ln 32; Page 6, lns 11-15. As a result, Rinsma attempts to deal with the issue of heat affecting the sensor within the confines of a design that accommodates asymmetric loading (its main objective). In other words, Rinsma already addresses the problem of heat affecting the sensor, and teaches those skilled in the art to use a design that deals with this heat—in ways different from the present invention—that permits the use of a design that achieves its basic objective.

One skilled in the art would not change the Rinsma design to employ the push rod design of Kojima, as such a modification would change the principle of operation of

the Rinsma device, which is not an appropriate modification for supporting an obviousness rejection. For example, in *In re Ratti*, the claims recited an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient spring member. The primary reference in the obviousness rejection disclosed an oil seal where the bore engaging portion was reinforced by a rigid, cylindrical sheet metal casing. The Court noted that an obviousness combination that redesigned the basic structure to change this basic operating principle of the primary reference in order to arrive at the claimed invention was improper, *See In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (C.C.P.A. 1959). Likewise, here, the proposed modification to Rinsma would require a change in its basic design that would change the basic way it operates, contrary to the specific teachings in Rinsma of how to deal with heat concerns in a way that permits employing a design that allows the device to achieve its primary objective of accommodating asymmetric loading.

Conclusion

In view of the above, it is submitted that the claimed invention would not have been obvious to a person of ordinary skill in the art at the time of the invention thereof. Accordingly, for all of the foregoing reasons, the rejection of claims 1-3 should be reversed, and it is respectfully requested that the Examiner be directed to issue a Notice of Allowance allowing these claims.

Respectfully submitted,

Nov 04, 2005

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Claims Appendix
to Appeal Brief Under 37 CFR §41.37
Serial No. 10/722,938

1. A device in a vehicle brake arrangement for determining an applied brake force, comprising an electric motor, a thrust rod gear driven by the motor, a thrust rod that applies a brake force when the gear is driven, an enclosed elastically deformable medium, on which a reaction force from the brake force is to act, and a force sensor located remotely from the elastically deformable medium, characterized in that an axially movable push rod is in contact with the medium, which axially moveable push rod transmits a force from the elastically deformable medium to the remotely located force sensor, which sensor transmits a signal to the electric motor that causes the motor to stop the application of brake force when a desired amount of force has been attained.

2. A device according to claim 1, characterized in that the force sensor comprises a fixed force-receiving cup, in which the end of the push rod opposite the medium engages and which is provided with a sensor element for the engagement with the push rod.

3. A device according to claim 2, characterized in that the push rod in the region for its engagement with the force-receiving cup is provided with a guiding and centering O-ring.